

ABSTRACT

Biological molecules such as protein molecules are ionized without being damaged.

Massive cluster ions of a water/methanol mixture  
5 (to which acetic acid or ammonia, etc., has been added)  
(in the vicinity of dry ice - acetone temperature) are  
generated in a charged-droplet generating chamber 31 by  
a cold electrospray 32, and the ions are accelerated in  
an evacuated acceleration chamber 41 by a high-voltage  
10 electric field on the order of 10 KV, thereby  
bombarding a biological sample thin film, which has  
been applied to a cooled specimen substrate, and  
achieving ionization of large biomolecules.